

IN THE CLAIMS

Claim 1(First time amended). A scintillator detector for high energy radiation [crystal] comprising : a monocrystalline structure of cerium doped lutetium yttrium orthosilicate.

CANCEL CLAIM 3.

Claim 5(First Time Amended). A scintillation detector assembly comprising:  
a cerium doped lutetium yttrium orthosilicate mono crystal; and,  
a photon detector coupled to said crystal said crystal when exposed to a high energy gamma ray.

CANCEL CLAIM 6.

Claim 7(First Time Amended). The detector assembly of Claim 5 wherein said mono crystal has the general composition of  $Ce_{2x}(Lu_{1-y}Y_y)_{2(1-x)}SiO_5$  where  $x =$  approximately 0.00001 to approximately 0.05 and  $y =$  approximately 0.0001 to approximately 0.9999.

Claim 9(First Time Amended). The detector assembly of Claim 8 [5] wherein said coupled photon detector is selected from at least one of a photomultiplier tube, a PIN diode and an AP[F]D(avalanche photo detector) diode.

Please Add New Claims as follows:

- 10. A method of detecting energy with a scintillation detector, comprising the steps of:  
receiving radiation by a crystal comprising cerium doped lutetium yttrium orthosilicate;  
detecting energy from a detector coupled to the crystal.
11. The method of claim 10, wherein the step of receiving radiation includes the step of:  
receiving gamma rays.
12. The method of claim 10, wherein the step of receiving radiation includes the step of:

receiving x-rays.

13. The method of claim 10, wherein the step of receiving radiation includes the step of: receiving cosmic rays.
14. The method of claim 10, wherein the step of receiving radiation includes the step of: receiving radiation by a monocrystalline.
15. The method of claim 10, wherein the step of detecting includes the step of: detecting light with a photo detector coupled to the crystal.
16. The method of claim 15, wherein the step of detecting includes the step of: detecting light with a photomultiplier tube coupled to the crystal.
17. The method of claim 15, wherein the step of detecting includes the step of: detecting light with a PIN diode coupled to the crystal.
18. The method of claim 15, wherein the step of detecting includes the step of: detecting light with an APD diode coupled to the crystal.
19. The method of claim 10, wherein the crystal includes a composition of  $\text{Ce}_{2x}(\text{Lu}_{1-y}\text{Y}_y)_{2(1-x)}\text{SiO}_5$  where  $x =$  approximately 0.00001 to approximately 0.05 and  $y =$  approximately 0.0001 to approximately 0.9999.
20. The method of claim 13, wherein  $x$  ranges from approximately 0.0001 to approximately 0.001 and  $y$  ranges from approximately 0.3 to approximately 0.8. --.

Remarks

Favorable consideration of this application is respectfully requested. Applicant has amended claims 1, 5, 7, 9, canceled claims 3 and 6 and added new claims 10-20. Applicants gratefully appreciate the telephone conversation with the Examiner on January 15, 2001. As discussed, amended independent claims 1 and 5 are limited to a scintillation detector which is